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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/796,615

03/09/2004

Hugo Jorquera Fuentes

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12/22/2005

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EXAMINER

MURALIDAR, RICHARD V

ART UNIT

PAPER NUMBER

2838

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/796,615

Applicant(s)

FUENTES, HUGO JORQUERA

Examiner

Richard V. Muralidar

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 9 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-8, 10-12, 14-18, 21-24, 27, 34 and 35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5, 9, 13, 14, 19, 20, 25, 26 and 28-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9 March 2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION*****Drawings***

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show: Fig. 1 fails to label the diode that is connected to the node formed by inductor 162 and switch 181 as described in the specification. Additionally, Fig. 2 inductor 283 is shown connected to the dashed box that indicates switching aid circuit 28. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. "Power Converter with Three-Way Selector Switch for Buck/Boost/Buck-Boost Modes" is suggested.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5, 9, 13, 14, 19, 20, 25, 26, 31, and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 5, 9, 13, 14, 19, 20, 25, 26, 31, and 32 contain the same error as they all depend on Claim 5.

5. Claims 28-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 28-33 do not give a clear indication of which transistor is conducting, and which is non-conducting.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Midya [6348781].

8. With respect to Claim 1, Midya discloses a buck/boost converter comprising an input and an output [Fig. 1 buck/boost converter 20]; a switching cell with a switch between the input and the output [switches 30 and 34]; a selector [Fig. 1 buck/boost control circuit 26] selectively configuring the switching cell [switches 30, 34, diodes 40, 46, and inductor 38] into at least two configurations from among the following: a parallel chopper configuration [Fig. 2, in Boost mode] or a series chopper configuration [Fig. 3, in Buck mode] or; an inductive-storage chopper configuration; the cell using the same switch [Fig. 1 switches 30 and 34 are used in both modes, either opened or closed] in all the configurations.

9. With respect to Claim 2, Midya discloses that the selector selectively configures the switching cell from among the three configurations [Fig. 2 Boost mode; Fig. 3 Buck mode; and Fig. 1 buck/boost control circuit 26 is clearly capable of Buck/Boost mode with adjustment to Ramp 1, Ramp 2, V ref. signals].

10. With respect to Claim 3, Midya discloses that the switching cell comprises an inductor [Fig. 1 inductor 38] and diodes [Fig. 1 diodes 40 and 46].

11. With respect to Claim 4, Midya discloses that the switching cell comprises an inductor [Fig. 1 inductor 38] and diodes [Fig. 1 diodes 40 and 46].

12. With respect to Claims 6, 7, and 8, Midya discloses that the switch is a transistor [col. 2 lines 65-67].

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13. With respect to Claims 10-12, and 14, Midya discloses that the selector [Fig. 1 buck/boost control circuit 26] comprises two transistors [Fig. 5 shows the internal circuitry of control circuit 26, consisting of comparators, gates, and latches. These are well known in the art to comprise transistors].

14. With respect to Claim 15, Midya discloses that the selector comprises two transistors of a low frequency, for example, 50 kHz [one of ordinary skill in the art can easily choose circuit values such that the switches will fall within a desired frequency operating range].

15. With respect to Claims 16-18, and 21, Midya discloses that in the parallel chopper configuration, the transistors are both conducting [col. 3, lines 21-27 switch 30 conducts continuously while switch 34 conducts alternately according to a duty cycle].

16. With respect to Claims 21-24, and 27, Midya discloses that in the series chopper configuration, the transistors are both non-conducting [col. 3, lines 29-32 switch 34 is non-conducting continuously while switch 30 is non-conducting alternately according to a duty cycle].

17. With respect to Claim 34, Midya discloses a capacitor for filtering the voltage at the output [Fig. 1 capacitor 50].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103[a] which forms the basis for all obviousness rejections set forth in this Office action:

[a] A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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18. Claim 35 is rejected under 35 U.S.C. 103[a] as being unpatentable over Midya [6348781] in view of Usui [2002/0011825].

19. With respect to Claim 35, Midya discloses the charger in accordance with Claim 1, but does not disclose a diode bridge at the input. It is noted that a diode bridge rectifier at the input of a dc-dc converter effectively results in an ac-dc converter.

Usui discloses a diode bridge at the input of an ac-dc converter [Fig. 1 full bridge rectifier 3].

At the time of the invention it would have been obvious to one of ordinary skill in the art to add a full bridge rectifier to Midya.

The suggestion/ motivation for doing so would have been to provide a source of dc power for the input to the dc-dc converter, if ac was the only source of power available. A full bridge rectifier is a common method of inputting dc into a converter from an available ac source.

### ***Conclusion***

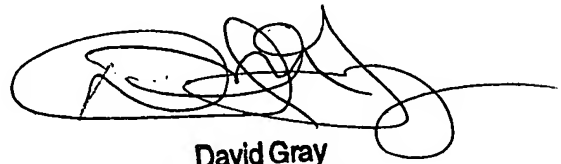
20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard V. Muralidar whose telephone number is 571-272-8933. The examiner can normally be reached on Monday to Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on Monday to Friday 8-5. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RVM  
12/19/2005



David Gray  
Primary Examiner